

Supplementary table 2: Nutrition protocol.

Feeding initiation and advancement parameters

- For intubated patients with NUTRIC⁴⁷ score =5 with severe malnutrition per clinical assessment, unless contraindicated (see below) enteral access should be obtained and tube feeds initiated within 48 hours of admission
- For non-intubated severely malnourished patients or patients with NUTRIC score =5 who remain NPO or on a clear liquid diet on ICU day 5, get enteral access and initiate feeds unless contraindicated (see below)
- After resuscitation is complete (as defined by the resuscitation protocol), start tube feeds at 20 mL/hour and if no moderate or severe intolerances exist, advance by 10 mL/hour every 4-6 hours until the targeted goal is reached
- If post-pyloric enteral access is unavailable after multiple attempts, gastric feeds via a nasogastric tube may be initiated with aspiration precautions and gastric residual volume checks every 4 hours, tube feeds should only be held for residuals >500 mL or other signs of intolerance (e.g. emesis, distension)
- Enteral feeds should be no greater than 10ml/hour for the following high vasopressor requirements:
 - Norepinephrine or Epinephrine >0.1mcg/kg/min
 - Phenylephrine >1mcg/kg/min
 - Dopamine >10mcg/kg/min
 - Multiple vasopressors

Contraindications for tube feeds (risk for non-occlusive bowel necrosis)

- Active shock resuscitation
- Mean arterial pressure <60 mmHg for >60 minutes
- Acute respiratory distress syndrome with prone position
- Moderate or severe distention for >48 hours on an elemental diet
- Ischemic heart disease requiring vasopressors
- Bladder pressure >20 mmHg
- Vasopressin use
- Paralytic use

Tube feed formula	Kcal/mL	Protein g/L
Immune enhancing	1.5	94
Polymeric	1.5	63
Semi-elemental	1.2	75

Additives	Kcal/pack	Contents/pack
Juven®	80	7g glutamine, 7g arginine
Benefiber®	15	3g soluble fiber
Protein liquid	60	15g protein

Indications for immune enhancing formula
(administer for 10 days following surgery or trauma)

1. Non-trauma patients
 - Moderately or severely malnourished patients undergoing major gastrointestinal surgery should receive immune enhancing formulas for 5-7 day preoperatively and 10 days postoperatively

2. Trauma patients
 - Major torso trauma
 - Combined flail chest/pulmonary contusion anticipated to require prolonged mechanical ventilation
 - Thoracotomy with lung resection, aortic repair, or diaphragm repair
 - Patients >45 years old with 4 or more rib fractures or flail chest
 - Major abdominal trauma
 - Two or more of the following:
 - >6 unit transfusion requirement
 - Major pelvic fracture (acetabular, vertical shear, open book)
 - Two or more long bone fractures

Indications for polymeric formula

- Patients who do not meet the criteria for immune enhancing formula but have normal digestive and absorptive capacity of the gastrointestinal tract
- Patients who have received 10 days of immune enhancing formula administration

Indications for semi-elemental formula

- Pancreatitis
- Intolerance to the first formula used
- Short gut syndrome
- High output distal colonic or ileal fistula
- Persistent, severe diarrhea for >48 hours on polymeric formula

Indications for Juven®*

- After intraoperative ischemia/reperfusion injury (systolic blood pressure <90 mmHg for >1 hour or serum lactate >4 mmol/L)
- After cardiac arrest or burn injury
- Thoracoabdominal radiation and/or chemotherapy
- Major torso trauma with Injury Severity Score >17
- Post-operative patients at high risk for poor wound healing
- Prolonged mechanical ventilation

*Do not use Juven® if the patient is status post solid organ transplantation

Indications for total parenteral nutrition

- Massive small bowel resection refractory to enteral feeds
- High output fistula after failure of elemental diet
- Unable to meet >60% caloric and protein goals enterally by ICU day 7
- Unable to meet >85% caloric and protein goals enterally by ICU day 10
- High risk for non-occlusive bowel necrosis after ICU day 7

- TPN may be considered earlier in patients with severe malnutrition or NUTRIC =5 and contraindications to enteral nutrition feeding

- Lipids should not be given to critically ill patients who require parenteral nutrition during their first week of hospitalization

Weekly indirect calorimetry assessments

- For mechanically ventilated patients with FiO₂ <60%, PEEP <10 mmHg, no leaky chest tubes or leaky endotracheal tubes, bronchopleural fistula, or renal replacement therapy within 12 hours and are receiving enteral or parenteral nutrition at goal rate

- Measure 24-hour urine urea nitrogen weekly for patients who are not receiving renal replacement therapy or diuresis

NPO: nothing by mouth, ICU: intensive care unit, FiO₂: fraction of inspired oxygen, PEEP: positive end-expiratory pressure